



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: MORI et. al

Application No. 10/647,076

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Group Art Unit: 3643

Examiner: Jeffrey L. Gellner

Title: PLANT-CULTIVATING CONTAINER AND PLANT-CULTIVATING
METHOD

DECLARATION

PURSUANT TO 37 C.F.R. 1.132

I, Akihiro OKAMOTO, declare and state that I graduated from Department of Applied Physics, Faculty of Science and Engineering, Waseda University in march 1967. I have been employed by DENKI KAGAKU KYOGYO KABUSHIKI KAISHA since April, 1967, during which time I have been engaged, among others, in the research and development in the field polymer synthesis and analytical organic chemistry. Thereafter, I have been employed by Waseda University since April, 2000, during which time I have been engaged, among

others, in the research and development in the field of plant cultivation in an artificial environment. Thus, I am very familiar with the preparation, analysis and properties of various polymer films and plants, or the like.

I understand that the above application has been rejected based on United States Patent No. 5,363,592, and JP-B 7-45269-U (Utility Model, KOKOKU). In order to show the differences between the subject matters of United States Patent No. 5,363,592 and JP-B 7-45269-U, and the subject matter of U.S. Patent Application Ser. No. 10/647,076 (hereinafter, referred to as the subject application"), the following experiments were conducted by me.

Experiment 1 deals with plant growth tests using three kinds of non-porous hydrophilic polymer films (i.e., a non-porous hydrophilic polyester film, a non-porous hydrophilic cellophane film, and a non-porous hydrophilic polyvinyl alcohol film) in an open-air system.

Experiment 1

Each of a non-porous hydrophilic polyester film (trade name: K06-40BL, mfd. by Du Pont Kabushiki Kaisha, having a

thickness of about 40 μm), a non-porous hydrophilic cellophane film (trade name: PL#500, mfd. by Futamura Chemical Kabushiki Kaisha, having a thickness of about 35 μm), and a non-porous polyvinyl alcohol (PVA) film (trade name: #40, mfd. by Aicello Chemical Kabushiki Kaisha, having a thickness of about 40 μm) was used as a moisture-permeable film.

700 ml of tap water was poured into a **tray-shaped** plastic container (size: about 20x12x5.5 cm), and each of these films (size: about 30cmx22cm) was placed in the inside of the tray-shaped plastic container so that the lower surface of the film was in contact with the tap water disposed inside of the tray-shaped container.

About 170 g of commercially available soil (trade name: Super-Mix A, mfd. by Sakata Seed Co., Ltd.) was poured into the inside of the thus prepared film-covered tray-shaped container.

Then, six rucola seedlings each having about one true leaf, which had been grown from seeds (trade name: Odessey, mfd. by Sakata Seed Co., Ltd.) for about 17 days after the sowing of the seeds, were planted on the surface portion of the above-mentioned soil which had been disposed in the film-covered tray-shaped container.

The thus planted rucola seedlings were subjected to cultivation for 39 days under the following conditions.

Temperature: 21 °C

Humidity: 60-70 %

Illuminance: 3700-3800 Lx by use of artificial light
(**fluorescent tubes**)

After 39 days from the beginning of the cultivation, the resultant height and numbers of the true leafs were measured.

The results of the above cultivation test are shown in the following Table 1.

[Table 1]

<Ex. No.>	<Kind of film>	<Height and number of true leafs>	
No. 1	polyester film	6-8 cm	Five
No. 2	cellophane film	Measurement was impossible	
No. 3	PVA film	7-10 cm	Six

In the above experiment, when the hydrophilic polyester film was used, it was found that rucola seedlings were cultivated for 39 days almost in the same manner as in

the case using the PVA film.

On the other hand, when the cellophane film was used, it was found that rucola seedlings were cultivated for about ten days almost in the same manner as in the case using the PVA film. However, in this case, some breakage of the cellophane film was observed thereafter, and water immersion was caused in the inside of the film, to thereby cause the root rot of rucola seedlings, as shown in the photograph of the rucola seedlings after 31 days. Thereafter, the seedlings showed the apoptosis thereof at 39 days after the beginning of the cultivation.

According to my observation of the cellophane film, it was presumed that the cellophane film was gradually decomposed under the action of microorganisms.

The states of the plant cultivation are shown in the following photographs of Figs. 1(a) to 3(c) attached hereto.

Fig. 1(a): Photograph of rucola seedlings at the time of the planting, in the case of polyester film;

Fig. 1(b): Photograph of rucola seedlings at the time of the planting, in the case of cellophane film;

Fig. 1(c): Photograph of rucola seedlings at the time of the planting, in the case of PVA film;

Fig. 2(a): Photograph of rucola seedlings after 31 days form the planting, in the case of polyester film;

Fig. 2(b): Photograph of rucola seedlings after 31 days form the planting, in the case of cellophane film;

Fig. 2(c): Photograph of rucola seedlings after 31 days form the planting, in the case of PVA film;

Fig. 3(a): Photograph of rucola seedlings after 39 days form the planting, in the case of polyester film; and

Fig. 3(c): Photograph of rucola seedlings after 39 days form the planting, in the case of PVA film.

I, the undersigned declarant, declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and; further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001, of Title 18, of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed this eighth day of July , 2005



Akihiro Okamoto